

Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

October 26, 2004

Mr. Mark McAdoo State of Tennessee Department of Environment and Conservation Division of Water Pollution Control Enforcement & Compliance Section 6th Floor, L&C Annex 401 Church Street Nashville, Tennessee 37243-1534

Mr. McAdoo:

2004 DISCHARGE MONITORING REPORT – QUALITY ASSURANCE (DMR-QA) STUDY 24 PROVIDER-GRADED TEST RESULTS

Please find enclosed the provider-graded test results of the 2004 DMR-QA Study 24 Laboratory Performance Evaluation obtained by TVA Sequoyah Nuclear Plant and supporting Laboratories as required by NPDES Permit TN0026450.

Please contact me at (423) 843-6700 if you have any questions or comments.

Stephanie a. Loward

Stephanie A. Howard
Principal Environmental Engineer
Signatory Authority for
J. Randy Douet
Site Vice President
Sequoyah Nuclear Plant

Enclosure cc (Enclosure)

Mr. Wayne Turnbull EPA Region IV ESD/ASB/LE&QAS 980 College Station Road Athens, Georgia 30605-2720

Chattanooga Environmental Assistance Center Division of Water Pollution Control State Office Building, Suite 550 540 McCallie Avenue Chattanooga, Tennessee 37402-2013

U.S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, D.C. 20555

IE25



October 19, 2004

Stephanie A Howard Tennessee Valley Authority PO Box 2000 SB-2A Sequoyah Nuclear Plant Soddy Daisy, TN 37384-2000

Enclosed is your final report for ERA's Proficiency Testing Study, DMR-QA 24 Your final report includes an evaluation of every result submitted by your facility to ERA. Please note that reports were sent on your behalf to both the USEPA DMR-QA office, and your state or regional DMR-QA Coordinator.

If you have any "Not Acceptable" evaluations for the DMR-QA 24 Study, a letter of corrective action and an order form for the required remedial samples are attached for your convenience. If there is no order form or standards listed for your in-house or outside laboratories, than ERA recommends that you contact your DMR QA Coordinator for their corrective action requirements. This concludes the DMR-QA 24 Study.

Thank you for your participation in ERA's Proficiency Testing Study, DMR-QA 24. If you have any questions, please contact myself or Curtis Wood, Quality Assurance Director, at 1-800-372-0122.

Sincerely,

Shawn Kassner

Proficiency Testing Manager

attachments smk







October 19, 2004

Stephanie A Howard Tennessee Valley Authority PO Box 2000 SB-2A Sequoyah Nuclear Plant Soddy Daisy, TN 37384-2000

In my role as ERA's Quality Assurance Director, I have ensured that all aspects of ERA's Proficiency Testing Study, DMR-QA 24, have been reviewed for compliance with all USEPA technical and program requirements in effect during this study. To all of you who were asked to provide additional information as we were processing your data packages, thank you for your patience and assistance.

All aspects of ERA's DMR-QA 24 Study, from standard manufacture to final report generation, were completed by ERA in accordance with the "National Standards for Water Proficiency Testing Studies Criteria Document", USEPA December 30, 1998. ERA has reviewed all of the data that is contained in this report and has made every possible effort to make it complete, accurate and compliant. However, if you find anything in your report that you feel is incomplete or inaccurate or have any quality related issues, please call me directly at 1-800-372-0122. As required by ERA Standard Operating Procedure for Handling Product and Service Problems (SOP 0150, Rev.7.0), we will initiate an internal investigation and take corrective action as appropriate.

Sincerely,

Curtis J. Wood

Quality Assurance Director

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ERA Study: DMR-QA 24

Permittee Name:

Tennessee Valley Authority

NPDES Permit Number: TN0026450
Customer Code: T2033-02

Report Prepared by: Environmental Resource Associates Arvada, Colorado

October 19, 2004







DMR-QA 24 Definitions & Study Discussion

NPDES Permit Number: TN0026450

Customer Code: T2033-02

DMRQA Study Definitions:

The Reported Value is the value that the laboratory reported to ERA.

The ERA Assigned Values were established per the USEPA's guidelines contained in the National Standards for Water Proficiency Testing Studies Criteria Document, December 1998.

The Acceptance Limits and Warning Limits are established per the USEPA's guidelines contained in the National Standards for Water Proficiency Testing Studies Criteria Document, December 1998.

The Performance Evaluation:

Acceptable

= Reported Value falls within the Acceptance Limits.

Not Acceptable = Reported Value falls outside the

Acceptance Limits.

Check for Error = Reported Value falls within the

Acceptance Limits and outside of

the Warning Limits

No Evaluation = Reported Value cannot be evaluated

The Method Description is the method the laboratory reported to ERA.

Report Issued: 10/19/04 Study Dates: 06/03/04 - 09/03/04

DMRQA Study Discussion:

ERA's DMR-QA 24 Study has been reviewed by ERA Senior Management and certified compliant with the requirements of the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document (December 1998). ERA is a NIST NVLAP accredited PT Provider (Lab Code 200386-0).

ERA's DMR-QA 24 Study standards were examined for any study anomalies. A full review of all homogeneity, stability, and accuracy verification data was completed. All analytical verification data for all analytes in ERA's DMR-QA 24 standards met the acceptance criteria contained in the USEPA's National Criteria Document for Water Proficiency Testing Studies, December 1998.

The data submitted by participating laboratories was also examined for study anomalies. There were no study anomalies found during the review of the study data.

The DMR-QA 24 Study report shall not be reproduced except in its entirety and not without the permission of the participating laboratory. The report must not be used by the participating laboratory to claim product endorsement by NVLAP or any agency of the U. S. government.

If you have any questions regarding ERA's DMR-QA 24 Study, please contact Shawn Kassner, Proficiency Testing Manager, or Curtis Wood, Quality Assurance Director, at 1-800-372-0122.







NPDES Permit #: TN0026450

Customer Code: T2033-02

Permit Holder: STEPHANIE A HOWARD

Report Issued: 10/19/04

PRINCIPAL ENV ENGINEER

Study Dates: 06/03/04 - 09/03/04

TENNESSEE VALLEY AUTHORITY

PO BOX 2000 SB-2A

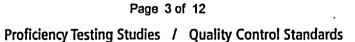
SEQUOYAH NUCLEAR PLANT SODDY DAISY, TN 37384-2000

423-843-6700

| | Performance | Reported | Assigned | Acceptance | Warning | - | Method | USEPA | |
|--------------|-----------------|----------|----------|-------------|-------------|-------|-------------|---|----------|
| Analyte | Evaluation | Value | Value | Limits | Limits | Units | Description | Lab Code | Study |
| Trace Metals | | | | | | · | | | |
| Aluminum † | | | 520 | 435 - 605 | 463 - 577 | μg/L | | | DMRQA024 |
| Arsenic† | | | 302 | 251 - 355 | 268 - 338 | µg/L | | | DMRQA024 |
| Cadmium † | | | 218 | 185 - 248 | 196 - 238 | µg/L | | | DMRQA024 |
| Chromium † | | | 280 | 242 - 318 | 255 - 305 | µg/L | | | DMRQA024 |
| Cobalt † | | | 409 | 359 - 459 | 376 - 442 | µg/L | | | DMRQA024 |
| Copper† | Check for Error | 324 | 348 | 314 - 384 | 326 - 372 | µg/L | EPA 220.2 | TN00016 | DMRQA024 |
| fron † | Acceptable | 454 | 454 | 398 - 517 | 418 - 497 | µg/L | EPA 200.7 | TN00016 | DMRQA024 |
| Lead † | | | 321 | 277 - 364 | 291 - 350 | µg/L | | | DMRQA024 |
| Manganese † | | | 252 | 225 - 280 | 234 - 271 | µg/L | | | DMRQA024 |
| Mercury † | | | 11.2 | 8.36 - 14.0 | 9.30 - 13.1 | µg/L | | | DMRQA024 |
| Nickel † | | | 538 | 483 - 603 | 503 - 583 | hg/L | | | DMRQA024 |
| Selenium † | | | 822 | 653 - 952 | 702 - 902 | hg/L | | | DMRQA024 |
| Vanadium † | | | 321 | 287 - 352 | 298 - 341 | hg/L | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | DMRQA024 |

[†] Indicates analytes included in ERA's NIST/NVLAP accreditation. Lab Code 200386-0









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Report Issued: 10/19/04

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Study Dates: 06/03/04 - 09/03/04

TENNESSEE VALLEY AUTHORITY

PO BOX 2000 SB-2A

SEQUOYAH NUCLEAR PLANT SODDY DAISY, TN 37384-2000

423-843-6700

| | | | | , | | | | |
|---------------------------|-------------------|-------------------|--|---|--|---|---|--|
| Performance Evaluation | Reported Value | Assigned Value | Acceptance Limits | Warning Limits | Units | Method Description | USEPA Lab Code | Study |
| | | • | | | | | | |
| | | 648 | 573 - 730 | 599 - 704 | μg/L | | | DMRQA024 |
| • | • | | | • | · | | | |
| | | 75.3 | 38.0 - 113 | 50.4 - 100 | mg/L | | | DMRQA024 |
| | | 64.8 | 29.1 - 101 | 41.0 - 88.7 | mg/L | | | DMRQA024 |
| | ************* | 121 | 91.2 - 140 | 99.3 - 132 | mg/L | | | DMRQA024 |
| | | 47.9 | 40.0 - 55.2 | 42.5 - 52.7 | mg/L | | | DMRQA024 |
| | | | | | | | | |
| | | 17.2 | 13.4 - 20.8 | 14.6 - 19.6 | mg/L | | | DMRQA024 |
| | *************** | 11.4 | 9.02 - 13.5 | 9.77 - 12.8 | mg/L | •••••• | | DMRQA024 |
| | | 2.50 | 2.13 - 2.89 | 2.26 - 2.77 | mg/L | | | DMRQA024 |
| | | 16.7 | 12.1 - 20.7 | 13.6 - 19.3 | mg/L | | | DMRQA024 |
| Acceptable | 3.46 | 3.67 | 2.79 - 4.31 | 3.04 - 4.06 | mg/L | EPA 365.4 | TN00016 | DMRQA024 |
| | Evaluation | Evaluation Value | Evaluation Value Value 648 75.3 64.8 121 47.9 17.2 11.4 2.50 16.7 | Evaluation Value Value Limits 648 573 - 730 75.3 38.0 - 113 64.8 29.1 - 101 121 91.2 - 140 47.9 40.0 - 55.2 17.2 13.4 - 20.8 11.4 9.02 - 13.5 2.50 2.13 - 2.89 16.7 12.1 - 20.7 | Evaluation Value Limits Limits 648 573 - 730 599 - 704 75.3 38.0 - 113 50.4 - 100 64.8 29.1 - 101 41.0 - 88.7 121 91.2 - 140 99.3 - 132 47.9 40.0 - 55.2 42.5 - 52.7 17.2 13.4 - 20.8 14.6 - 19.6 11.4 9.02 - 13.5 9.77 - 12.8 2.50 2.13 - 2.89 2.26 - 2.77 16.7 12.1 - 20.7 13.6 - 19.3 | Evaluation Value Limits Limits Units 648 573 - 730 599 - 704 μg/L 75.3 38.0 - 113 50.4 - 100 mg/L 64.8 29.1 - 101 41.0 - 88.7 mg/L 121 91.2 - 140 99.3 - 132 mg/L 47.9 40.0 - 55.2 42.5 - 52.7 mg/L 17.2 13.4 - 20.8 14.6 - 19.6 mg/L 11.4 9.02 - 13.5 9.77 - 12.8 mg/L 2.50 2.13 - 2.89 2.26 - 2.77 mg/L 16.7 12.1 - 20.7 13.6 - 19.3 mg/L | Evaluation Value Limits Limits Units Description 648 573 - 730 599 - 704 μg/L 75.3 38.0 - 113 50.4 - 100 mg/L 64.8 29.1 - 101 41.0 - 88.7 mg/L 121 91.2 - 140 99.3 - 132 mg/L 47.9 40.0 - 55.2 42.5 - 52.7 mg/L 17.2 13.4 - 20.8 14.6 - 19.6 mg/L 11.4 9.02 - 13.5 9.77 - 12.8 mg/L 2.50 2.13 - 2.89 2.26 - 2.77 mg/L 16.7 12.1 - 20.7 13.6 - 19.3 mg/L | Evaluation Value Limits Limits Units Description Lab Code 648 573 - 730 599 - 704 μg/L 75.3 38.0 - 113 50.4 - 100 mg/L 64.8 29.1 - 101 41.0 - 88.7 mg/L 121 91.2 - 140 99.3 - 132 mg/L 47.9 40.0 - 55.2 42.5 - 52.7 mg/L 17.2 13.4 - 20.8 14.6 - 19.6 mg/L 11.4 9.02 - 13.5 9.77 - 12.8 mg/L 2.50 2.13 - 2.89 2.26 - 2.77 mg/L 16.7 12.1 - 20.7 13.6 - 19.3 mg/L |

[†] Indicates analytes included in ERA's NIST/NVLAP accreditation. Lab Code 200386-0



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Proficiency Testing Studies / Quality Control Standards





NPDES Permit #: TN0026450

Customer Code: T2033-02

Permit Holder: STEPHANIE A HOWARD

Report Issued: 10/19/04

PRINCIPAL ENV ENGINEER

Study Dates: 06/03/04 - 09/03/04

TENNESSEE VALLEY AUTHORITY

PO BOX 2000 SB-2A

SEQUOYAH NUCLEAR PLANT SODDY DAISY, TN 37384-2000

423-843-6700

| Analyte | Performance Evaluation | Reported Value | Assigned Value | Acceptance Limits | Warning Limits | Units | Method Description | USEPA Lab Code | Study |
|--------------------------------|---------------------------|-------------------|-------------------|----------------------|-------------------|-------|-----------------------|-------------------|----------|
| Miscellaneous Analytes | | • | | | | | | | |
| Total Residual Chlorine † | Acceptable | 1.17 | 1.14 | 0.890 - 1.39 | 0.974 - 1.31 | mg/L | EPA 330.4 | TN00999 | DMRQA024 |
| Cyanide, total † | • | | 0.574 | 0.397 - 0.740 | 0.454 - 0.682 | mg/L | | | DMRQA024 |
| pH† | Check for Error | 8.18 | 8.43 | 8.18 - 8.67 | 8.26 - 8.59 | S.U. | EPA 150.1 | TN00999 | DMRQA024 |
| Phenolics, total † | | • | 1.32 | 0.726 - 1.91 | 0.923 - 1.71 | mg/L | •••••••••• | | DMRQA024 |
| Non-filterable residue / TSS † | Acceptable | 80 | 89.9 | 69.8 - 97.1 | 74.4 - 92.6 | mg/L | EPA 160.2 | TN00016 | DMRQA024 |
| Grease & Oil (Gravimetric) † | Acceptable | 21 | 24.0 | 14.5 - 29.0 | 16.9 - 26.6 | mg/L | EPA 1664A | TN00016 | DMRQA024 |
| Grease & Oil (Infrared) † | | | 29.5 | 18.6 - 34.7 | 21.3 - 32.0 | mg/L | | | DMRQA024 |

† Indicates analytes included in ERA's NIST/NVLAP accreditation. Lab Code 200386-0







Customer Code: T2033-02 Report Issued: 10/19/04

Study Dates: 06/03/04 - 09/03/04

NPDES Permit #: TN0026450

Permit Holder: STEPHANIE A HOWARD

PRINCIPAL ENV ENGINEER

TENNESSEE VALLEY AUTHORITY

PO BOX 2000 SB-2A

SEQUOYAH NUCLEAR PLANT SODDY DAISY, TN 37384-2000

423-843-6700

| Analyte | Performance Evaluation | Reported Value | Assigned Value | Acceptance Limits | Warning Limits | Units | Method Description | USEPA Lab Code | Study |
|--------------------------|---|-------------------|-------------------|----------------------|-------------------|-------|-----------------------|-------------------|----------|
| Additional Analytes | | | | | | | - Doodilption | Lub doud | |
| Antimony † | | | . 417 | 289 - 503 | 325 - 468 | µg/L | | | DMRQA024 |
| Barlum | ***-* | ••••••• | 618 | 531 - 704 | *************** | µg/L | •••••••• | •••••• | DMRQA024 |
| Beryllium † | ••••••••••• | | 210 | 178 - 237 | 188 - 227 | hð/Ľ | | •••••• | DMRQA024 |
| Boron | Acceptable | 709 | 667 | 541 - 854 | •••••• | µg/L | EPA 200.7 | TN00016 | DMRQA024 |
| Molybdenum † | | | 113 | 94.8 - 130 | 101 - 124 | µg/L | | | DMRQA024 |
| Silver † | *************************************** | ••••••• | 151 | 129 - 173 | 136 - 166 | µg/L | | | DMRQA024 |
| Strontium † | *************************************** | ••••••• | 163 | 138 - 187 | 147 - 179 | µg/L | | | DMRQA024 |
| Thallium † | •••••• | *************** | 704 | 568 - 816 | 609 - 775 | hg/L | | •••••• | DMRQA024 |
| Calcium † | ***************************** | | 35.4 | 31.5 - 40.3 | 32.9 - 38.8 | mg/L | | | DMRQA024 |
| Magnesium † | | ************** | 24.2 | 21.2 - 27.1 | 22.1 - 26.1 | mg/L | | ••••••• | DMRQA024 |
| Calcium Hardness (CaCO3) | | | 88.4 | 74.2 - 105 | | mg/L | | | DMRQA024 |
| Total Hardness (CaCO3) † | | *************** | 188 | 171 - 206 | 177 - 200 | mg/L | ••••••• | | DMRQA024 |
| Nitrate + Nitrite as N | | *********** | 11.4 | 9.02 - 13.5 | •••••••• | mg/L | | | DMRQA024 |

[†] Indicates analytes included in ERA's NIST/NVLAP accreditation. Lab Code 200386-0



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Proficiency Testing Studies / Quality Control Standards





Customer Code: T2033-02

Report Issued: 10/19/2004

Study Dates: 06/03/04 - 09/03/04

NPDES Permit #: TN0026450

Permit Holder:

STEPHANIE A HOWARD

PRINCIPAL ENV ENGINEER

TENNESSEE VALLEY AUTHORITY

PO BOX 2000 SB-2A

SEQUOYAH NUCLEAR PLANT

SODDY DAISY, TN 37384-2000 423-843-6700

| Anal. Test Conditions No. | Test Endpoint | Performance Evaluation | Reported Value | Assigned Value | Acceptance Limits | Units | Method Description | USEPA Lab Code |
|--|--|---------------------------|-------------------|----------------|----------------------|-------|-----------------------|--------------------|
| Fathead minnow (Method Code 15) | ······································ | | | | | | | |
| 0756 7-day Short term Chronic, Daily Renewal, MHSF | NOEC Survival | | | 50.0 | 12.5 - 100 | % | | |
| 0808 7-day Short term Chronic, Daily Renewal, MHSF | IC25 (ON) Growth | Acceptable | 51.8 | 39.5 | 13.1 - 65.9 | % | EPA 1000 | NC01230 |
| 0809 7-day Short term Chronic, Daily Renewal, MHSF | IC25 (SN) Growth | | | 43.2 | 15.4 - 71.0 | % | | |
| 0810 7-day Short term Chronic, Daily Renewal, MHSF | NOEC (ON) Growth | | ************ | 25.0 | 12.5 - 50.0 | % | | |
| 0811 7-day Short term Chronic, Daily Renewal, MHSF | NOEC (SN) Growth | | | 25.0 | 12.5 - 50.0 | % | ************* | ****************** |
| Ceriodaphnia dubia (Method Code 21) | | | | | | | " | |
| 0766 7-day Short term Chronic, Daily Renewal, MHSF | NOEC Survival | | | 25.0 | 12.5 - 50.0 | % | | |
| 0767 7-day Short term Chronic, Daily Renewal, MHSF | IC25 Reproduction | Acceptable | 30.7 | 26.0 | 14.6 - 37.4 | % | EPA 1002 | NC01230 |
| 0768 7-day Short term Chronic, Daily Renewal, MHSF | NOEC Reproduction | | | 25.0 | 12.5 - 50.0 | % | | ********** |

All analytes are included in ERA's NIST/NVLAP (200386-0) and A2LA (1539-01) accreditations.







Customer Code: T2033-02

Report Issued: 10/19/2004

Study Dates: 06/03/04 - 09/03/04

NPDES Permit #: TN0026450

Permit Holder:

STEPHANIE A HOWARD

PRINCIPAL ENV ENGINEER

TENNESSEE VALLEY AUTHORITY

PO BOX 2000 SB-2A

SEQUOYAH NUCLEAR PLANT SODDY DAISY, TN 37384-2000

423-843-6700

| Anal. Test Conditions No. | Test Endpoint | Reference Toxicant Code | Reference Toxicant Name | Total # Reported | Total # Acceptable | Total # Not Acceptable | Total # No. Eval. | Study Failure Rate |
|--|------------------|----------------------------|----------------------------|---------------------|-----------------------|---------------------------|----------------------|-----------------------|
| Fathead minnow (Test Code 11) | | | | | | | | |
| 0752 48Hr., Acute, Non-Renewal, 20° C, MHSF | LC50 | 004 | (NH4)2HPO4 | 53 | 52 | 1 | 0 | 1.89 |
| Fathead minnow (Test Code 13) | | - | | | | | | |
| 0754 48Hr., Acute, Non-Renewal, 25° C, MHSF | LC50 | 004 | (NH4)2HPO4 | 60 | 58 | 2 | 0 | 3.33 |
| Fathead minnow (Test Code 14) | | | | | | | | |
| 0755 48Hr., Acute, Non-Renewal, 25° C, 20% DMW | LC50 | 004 | (NH4)2HPO4 | 18 | 16 | 2 | 0 | 11.1 |
| Fathead minnow (Test Code 15) | | | | | | | | |
| 0756 7-day Short term Chronic, Daily Renewal, MHSF | NOEC Survival | 004 | (NH4)2HPO4 | 65 | 64 | 1 | 0 | 1.54 |
| 0808 7-day Short term Chronic, Daily Renewal, MHSF | IC25 (ON) Growth | 004 | (NH4)2HPO4 | 57 | 53 | 4 | 0 | 7.02 |
| 0809 7-day Short term Chronic, Daily Renewal, MHSF | IC25 (SN) Growth | 004 | (NH4)2HPO4 | 27 | 24 | 3 | 0 | 11.1 |
| 0810 7-day Short term Chronic, Daily Renewal, MHSF | NOEC (ON) Growth | 004 | (NH4)2HPO4 | 59 | 58 | 1 | 0 | 1.69 |
| 0811 7-day Short term Chronic, Daily Renewal, MHSF | NOEC (SN) Growth | 004 | (NH4)2HPO4 | 30 | 29 | 1 | 0 | 3.33 |







Customer Code: T2033-02 Report Issued: 10/19/2004

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Study Dates: 06/03/04 - 09/03/04

NPDES Permit #: TN0026450

Permit Holder:

Ceriodaphnia dubia (Test Code 17) 0762 48Hr., Acute Renewal, 20° C, MHSF

Ceriodaphnia dubia (Test Code 18)

Ceriodaphnia dubia (Test Code 19) 0764 48Hr., Acute Renewal, 25° C, MHSF

0763 48Hr., Acute Renewal, 20° C, 20% DMW

STEPHANIE A HOWARD

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SEQUOYAH NUCLEAR PLANT SODDY DAISY, TN 37384-2000

423-843-6700

| 1420 040 0100 | | | | | | | | |
|---|------------------|----------------------------|----------------------------|---------------------|-----------------------|---------------------------|---|-----------------------|
| Anal. Test Conditions No. | Test Endpoint | Reference Toxicant Code | Reference Toxicant Name | Total # Reported | Total # Acceptable | Total # Not Acceptable | | Study Failure Rate |
| Fathead minnow (Test Code 16) | | • | | | - | | | |
| 0759 7-day Short term Chronic, Daily Renewal, 20% DMW | NOEC Survival | 001 | KCI | 19 | 16 | 3 | 0 | 15.8 |
| 0812 7-day Short term Chronic, Daily Renewal, 20% DMW | IC25 (ON) Growth | 001 | KCI | 19 | 17 | 2 | 0 | 10.5 |
| 0813 7-day Short term Chronic, Daily Renewal, 20% DMW | IC25 (SN) Growth | 001 | KCI | 11 | 8 | 3 | 0 | 27.3 |
| 0814 7-day Short term Chronic, Daily Renewal, 20% DMW | NOEC (ON) Growth | 001 | KCI | 17 | 15 | 2 | 0 | 11.8 |
| 0815 7-day Short term Chronic, Daily Renewal, 20% DMW | NOEC (SN) Growth | 001 | KCI | 12 | 10 | 2 | 0 | 16.7 |

KCI

KCI

KCI

13

7

52

13

47





0.00

0.00

9.62

001

001

001

LC50

LC50

LC50



Customer Code: T2033-02

Report Issued: 10/19/2004

Study Dates: 06/03/04 - 09/03/04

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423-843-6700

| Anal. Test Conditions No. | Test Endpoint | Reference Toxicant Code | Reference Toxicant Name | Total # Reported | Total # Acceptable | Total # Not Acceptable | | Study Failure Rate |
|---|-------------------|----------------------------|----------------------------|---------------------|-----------------------|---------------------------|---|-----------------------|
| Ceriodaphnia dubia (Test Code 20) | | · · | | | | | | |
| 0765 48Hr., Acute Renewal, 25° C, 20% DMW | LC50 | 001 | KCI | 19 | 17 | 2 | 0 | 10.5 |
| Ceriodaphnia dubia (Test Code 21) | | | | | | | | |
| 0766 7-day Short term Chronic, Daily Renewal, MHSF | NOEC Survival | 001 | KCI | 64 | 63 | 1 | 0 | 1.56 |
| 0767 7-day Short term Chronic, Daily Renewal, MHSF | IC25 Reproduction | 001 | KCI | 62 | 59 | 3 | 0 | 4.84 |
| 0768 7-day Short term Chronic, Daily Renewal, MHSF | NOEC Reproduction | 001 | KCI | 64 | 59 | 5 | 0 | 7.81 |
| Ceriodaphnia dubia (Test Code 22) | | | | | | | | |
| 0769 7-day Short term Chronic, Dally Renewal, 20% DMW | NOEC Survival | 001 | KCI | 26 | 25 | 1 | 0 | 3.85 |
| 0770 7-day Short term Chronic, Dally Renewal, 20% DMW | IC25 Reproduction | 001 | KCI | 29 | 19 | 10 | 0 | 34.5 |
| 0771 7-day Short term Chronic, Daily Renewal, 20% DMW | NOEC Reproduction | 001 | KCI | 27 | 26 | 1 | 0 | 3.70 |
| Daphnia magna (Test Code 32) | | | | | _ | | | |
| 0788 48Hr., Acute, Non-Renewal, 20° C, MHSF | LC50 | 001 | KCI | 21 | 18 | 3 | 0 | 14.3 |







NPDES Permit #: TN0026450

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STEPHANIE A HOWARD

Study Dates: 06/03/04 - 09/03/04

TENNESSEE VALLEY AUTHORITY

PO BOX 2000 SB-2A

SEQUOYAH NUCLEAR PLANT SODDY DAISY, TN 37384-2000

423-843-6700

| Anal. | . Test Conditions | Test Endpoint | Reference | Reference | Total # | Total # | Total # Not | Total # | Study |
|-------|---|----------------------|---------------|---------------|----------|------------|-------------|-----------|--------------|
| No. | | | Toxicant Code | Toxicant Name | Reported | Acceptable | Acceptable | No. Eval. | Failure Rate |
| Daphn | ia pulex (Test Code 36) | | | | | | | | |
| 0792 | 48Hr., Acute, Non-Renewal, 20° C, MHSF | LC50 | 001 | KCI | 16 | 15 | 1 | 0 | 6.25 |
| Daphn | ila pulex (Test Code 38) | | | | | | | | |
| 0794 | 48Hr., Acute, Non-Renewal, 25° C, MHSF | LC50 | 001 | KCI | 26 | 24 | 2 | 0 | 7.69 |
| Mysld | (Test Code 42) | | | | | | | | |
| 0798 | 48Hr., Acute, Non-Renewal, 20° C, 40 FSW | LC50 | 001 | KCI | 33 | 33 | 0 | 0 | 0.00 |
| Mysid | (Test Code 43) | • | | | | **** | | | |
| 0799 | 7-day Short term Chronic, Daily Renewal, 40 FSW | NOEC Survival | 001 | KCI | 23 | 22 | 1 | 0 | 4.35 |
| 0816 | 7-day Short term Chronic, Daily Renewal, 40 FSW | IC25 (ON) Growth | 001 | KCI | 20 | 19 | 1 | 0 | 5.00 |
| 0817 | 7-day Short term Chronic, Daily Renewal, 40 FSW | IC25 (SN) Growth | 001 | KCI | 14 | 13 | 1 | 0 | 7.14 |
| 0818 | 7-day Short term Chronic, Daily Renewal, 40 FSW | NOEC (ON) Growth | 001 | KCI | 20 | 19 | 1 | 0 | 5.00 |
| 0819 | 7-day Short term Chronic, Daily Renewal, 40 FSW | NOEC (SN) Growth | 001 | KCI | 14 | 12 | 2 | 0 | 14.3 |
| | | | | | | | | | |





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NPDES Permit #: TN0026450

Permit Holder:

STEPHANIE A HOWARD

PRINCIPAL ENV ENGINEER

TENNESSEE VALLEY AUTHORITY

PO BOX 2000 SB-2A

SEQUOYAH NUCLEAR PLANT SODDY DAISY, TN 37384-2000

423-843-6700

| Study Dates: | 06/03/04 - 09/03/04 |
|--------------|---------------------|
| | |

Customer Code: T2033-02

Report Issued: 10/19/2004

| Anal. Test Conditions No. | Test Endpoint | Reference Toxicant Code | Reference Toxicant Name | Total # Reported | Total # Acceptable | Total # Not Acceptable | Total # No. Eval. | Study Failure Rate |
|--|------------------|----------------------------|----------------------------|---------------------|-----------------------|---------------------------|----------------------|-----------------------|
| Inland silverside (Test Code 44) | | ····· | | | | | | |
| 0803 48Hr., Acute, Non-Renewal, 20° C, 40 FSW | LC50 | 001 | KCI | 32 | 32 | 0 | 0 | 0.00 |
| Sheepshead minnow (Test Code 46) | | | | | | | | |
| 0804 48Hr., Acute, Non-Renewal, 20° C, 40 FSW | LC50 | 001 | KCI | 11 | 11 | 0 | 0 | 0.00 |
| Sheepshead minnow (Test Code 47) | | | | | | | _ | - |
| 0805 7-day Short term Chronic, Daily Renewal, 40 FSW | NOEC Survival | 001 | KCI | 10 . | 10 | 0 | 0 | 0.00 |
| 0820 7-day Short term Chronic, Daily Renewal, 40 FSW | IC25 (ON) Growth | 001 | KCI | 9 | <u>,</u> 9 | 0 | 0 | 0.00 |
| 0821 7-day Short term Chronic, Daily Renewal, 40 FSW | IC25 (SN) Growth | 001 | KCI | 4 | 4 . | 0 | 0 | 0.00 |
| 0822 7-day Short term Chronic, Daily Renewal, 40 FSW | NOEC (ON) Growth | 001 | KCI | 9 | 9 | 0 | 0 | 0.00 |
| 0823 7-day Short term Chronic, Daily Renewal, 40 FSW | NOEC (SN) Growth | 001 | KCI | 5 | 5 | 0 | 0 | 0.00 |



